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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,867	09/22/2005	Noriaki Masuda	JCLA17676	3422
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BELYAEV, YANA				
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1741				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/550,867

Applicant(s)

MASUDA ET AL.

Examiner

YANA BELYAEV

Art Unit

1741

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6,8,10 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,8,10 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 8 September 2010, with respect to Ohara in view of Xiao failing to disclose that a luminescent glass article is "manufactured by sintering a mixture of particles of a glass and a luminescent substance, comprising a structure in which the luminescent substance is dispersed uniformly in the glass" have been fully considered and are persuasive.
2. Applicant's remaining arguments filed 8 September 2010 have been fully considered but they are not persuasive.

The applicant argues that Ohara fails to disclose that "an initial luminescence intensity just after irradiation of light of 1,000 lux for 20 min is 200 to 4,000 mcd/m²" as required by the present invention, as set forth in claims 1 and 4.

The examiner respectfully disagrees. This would have been an intrinsic property of the luminescent glass article of Ohara in view of Xiao. In other words it would be inherent for a luminescent glass article comprising a luminescent substance to have an initial luminescence intensity and since the luminescent glass article of Ohara in view of Xiao teaches the claimed content and particle size, it would inherently possess the claimed initial luminescence intensity and therefore reads on the claim in full. Thus, since Ohara in view of Xiao discloses the limitations of the instantly claimed luminescent glass article, it is inherent that the luminescent glass article of Ohara in view of Xiao would have an initial luminescence intensity just after irradiation of light of 1,000 lux for 20 min is 200 to 4,000 mcd/m².

The applicant argues that while Xiao does disclose that the content of the luminescent substance in the luminescent glass article is 0.01%-40%, which does overlap the claimed range

of 1.1 to 2.8 mass. However, in examples the content of light-storage self luminescent material is 0.26 wt% (example 1), 0.4 wt% (examples 2 and 3), 0.3 wt% (example 6) respectively, which is very smaller than the content of 1.1 to 2.8 mass % in claim 1.

The examiner respectfully disagrees. The instant application states that a luminescent article of the present invention preferably has a luminescent substance content of 0.1 to 5 wt% (page 5, lines 6-7). The instant application further states that, "A small content of the luminescent substance means luminescent glass articles can be manufactured at a low cost," (page 5, lines 10-12). Thus, the instant application's disclosure seems to indicate that it would be desirable to have a lower weight percent of the luminescent substance.

The applicant argues that one of ordinary skill in the art would not have sought a combination of Xiao and Ohara, because Xiao and Ohara disclose quite different glass with each other.

The examiner respectfully disagrees. Ohara teaches a luminous glass ceramic comprising 0.1 to 30 wt % of one or more rare earth elements (abstract) while Xiao teaches a self-luminous glass which comprises 0.01 to 40% of a light-storage self-luminescent material (abstract). Both teach that the glass is silica based. Therefore, Xiao and Ohara do not have different glass with each other.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-2, 4, 6, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US6204211, Ohara et al. ('Ohara' hereinafter), in view of the instant application's original disclosure, Masuda et al. ('Masuda' hereinafter), and further in view of US20050179008, Xiao et al. ('Xiao' hereinafter).

In regards to claims 1 and 4, Ohara teaches a luminescent glass article (Abstract), comprising a structure in which a luminescent substance (i.e. rare earth elements) is dispersed uniformly in the glass (Col. 13, lines 7-12), wherein the content of the luminescent substance in the luminescent glass article is 0.1-20 mass% (Col. 12, lines 31-33); light transmittance is 20 to 90% at a thickness of 10mm (Col. 16, lines 5- 10). Ohara further discloses specific examples wherein the content of the luminescent substance in the luminescent glass article is 1.1-2.8 mass % (i.e. roughly 2 mass % as shown in examples 1-1 through 1-4; Tables I and II).

As for claims 1 and 4, Ohara does not expressly disclose that the luminescent glass article is manufactured by sintering a mixture of particles of a glass and a luminescent substance, that the luminescent substance having an average particle size of 500 to 5,000 micrometers; and an initial luminescence intensity just after irradiation of light of 1,000 lux for 20 minutes is 200 to 4,000 mcd/m².

However, Masuda teaches that it was known to prepare a luminescent glass article by mixing glass powder particles with a luminescent substance and sintering the mixture, as taught, for example in Japanese Patent Document JP-A-11-293238 (page 2 of the instant application's original disclosure, lines 11-15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have applied a well known method for manufacturing a luminescent glass article, as taught on page 2, lines 11-15 of the instant application's original disclosure, to the instant application. The motivation to do so would have been the rationale that someone of ordinary skill in the art would apply a known, successful method for manufacturing a luminescent glass article for manufacturing a luminescent glass article.

Xiao discloses a closely related invention of a luminescent glass article comprising a structure in which a luminescent substance is dispersed uniformly in the glass, wherein the content of the luminescent substance in the luminescent glass article is 0.01-40 mass % (Abstract); wherein the particle size of the luminescent substance is 10 micrometers to 20 millimeters (Abstract). Xiao further discloses specific examples wherein the particle size of the luminescent substance is 500-5,000 micrometers (i.e. 800 and 1200 micrometers in examples 1 and 2, respectively; paragraphs [0059] and [0063]).

It would be obvious to one of ordinary skill in the art at the time the invention as made to incorporate the particle size of Xiao with the luminescent substance and resulting luminescent article of Ohara. The motivation is the rationale in that both Ohara and Xiao teach a similar luminescent glass article comprising similar mass % incorporation of a luminescent substance in a silica based glass and although Ohara is silent as to a particle size, it would be obvious to use a

particle size known in the art to produce such luminescent glass articles. Additional motivation is the rationale provided by Xiao in that the taught luminescent glass article incorporating the disclosed mass % of luminescent substance and particle size provides a long aftertime glow (paragraph [0011]) and can be produced by a simple process (paragraph [0012]).

In regards to the remainder of claim 1, stating that the luminescent glass article's initial luminescence intensity just after irradiation of light of 1,000 lux for 20 min is 200 to 4,000 mcd/m² would have been an intrinsic property of the luminescent glass article of Ohara in view of Xiao. In other words it would be inherent for a luminescent glass article comprising a luminescent substance to have an initial luminescence intensity and since the luminescent glass article of Ohara in view of Xiao teaches the claimed content and particle size, it would inherently possess the claimed initial luminescence intensity and therefore reads on the claim in full. Similarly in regards to claim 2, stating that the luminescent glass article is characterized in that the luminescence intensity 10 min after the irradiation is 10% or more of the initial luminescence states a property of the luminescent glass article. Since the luminescent glass article of Ohara in view of Xiao comprises a luminescent substance in the glass at the particle size and content as claimed, it would be inherent that the article would have the luminescence intensity as claimed.

In regards to claims 6 and 11, Ohara discloses that the luminescent glass article is composed of aluminosilicate glass (Abstract).

4. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohara in view of Xiao as applied to claims 1-2, 4, 6, and 11 above, and further in view of US5204289, Moh. ('Moh' hereinafter).

In regards to claims 5 and 10, Ohara and Xiao combine to teach the luminescent glass article of claims 1 and 4.

Ohara and Xiao do not expressly disclose the softening point temperature of the luminescent glass article.

It would be inherent that the luminescent glass article of claims 1 and 4 would have a softening point as this is a physical property inherent of glass.

Furthermore, it would be obvious to one of ordinary skill in that art at the time the invention was made to make the luminescent glass article of aluminosilicate-based glass as disclosed by Ohara (Abstract) and with a softening point of 650 degrees Celsius since it was widely known at the time of the invention as referenced by Moh (Col. 15, lines 41-44) that aluminosilicate-based glass may be made with a composition resulting in a softening point of 650 degrees Celsius.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohara in view of Xiao as applied to claims 1-2, 4, 6, and 11 above, and further in view of US4405881, Kobayashi. ('Kobayashi' hereinafter).

Ohara and Xiao combine to teach the luminescent glass article of claim 4 as detailed above.

Ohara does not expressly disclose that the luminescent glass article is formed into a block or plate having a thickness of 5-10 mm.

Kobayashi discloses a closely related invention of a luminescent glass article wherein the luminescent glass article is a plate with a thickness of 10mm and wherein the content of

luminescent substance in the luminescent glass article is 1.0 mass % (Col. 3, lines 29-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was to include the plate thickness of Kobayashi with the luminescent glass article of Ohara in view of Xiao. The rationale to combine the teachings of Kobayashi with the glass article of Ohara in view of Xiao is the motivation provided by the teaching of Kobayashi in that there is an inverse relationship between the thickness of the luminescent glass article and mass percent of luminescent substance needed to balance glass melting properties, costs, and an effect of the luminescent substance (Col. 3, lines 38-46); thus, a selection of a plate of 10mm thickness may be appropriate.

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US3527711, Barber et al., teaches a luminescent glass article comprising a luminescent substance having a particle size of 1-20 microns. US4588540, Kiefer et al., teaches a borosilicate glass with a softening temperature of 815°C. US2005/0160637, Hesse, teaches a luminescent glass article comprising a luminescent substance having a particle size of 10-70 microns and wherein a particle size is a result effect variable such that the larger the particle size, the higher the intensity of luminescence.
2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to YANA BELYAEV whose telephone number is (571)270-7662. The examiner can normally be reached on M-Th 8:30am - 6pm; F 8:30 am- 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Daniels can be reached on (571) 272-2450. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. B./
Examiner, Art Unit 1741

/Matthew J. Daniels/
Supervisory Patent Examiner, Art Unit 1741